

## ABSTRACT OF THE DISCLOSURE

An active pixel sensor comprising an N well of n type silicon formed in a p type silicon substrate and a P well of p type silicon is formed in the N well. A deep N well is formed of n type silicon underneath the P well. The edges of the deep N well contact the bottom of the N well forming an overlap region which can either be not depleted of charge carriers thereby electrically connecting the N well to the deep N well or depleted of charge carriers thereby electrically isolating the N well from the deep N well. N regions formed in the P well and P regions formed in the N well are used to reset the pixel and to read the pixel after a charge integration period. An array of P wells formed within N wells can be used to form an array of active pixel sensors. In this array an overlap region is formed between each N well and the deep N well. In an array of active pixel sensors the N regions can be binned together by using the overlap regions to connect each N well to the deep N well thereby achieving noise suppression during the reset cycle.